

BELLSOUTH

Cynthia K. Cox
Executive Director-
Federal and State Relations

EX PARTE OR LATE FILED

Suite 900
1133-21st Street, N.W.
Washington, D.C. 20036-3351
202 463-4104
Fax: 202 463-4196

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November 13, 1996

EX PARTE

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W. Room 222
Washington, D.C. 20054

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Re: CC Docket No. 95-116, Telephone Number Portability (Reconsideration of First
Report and Order)

Dear Mr. Caton:

In accordance with Commission rules, please be advised that the attached information was provided today by BellSouth to Mr. Jason Karp and Ms. Susan McMaster. This is additional information regarding issues raised in our Petition for Reconsideration, namely the use of Query on Release (QOR).

If you have any questions, please call me at 202-463-4104.

Sincerely,



Cynthia K. Cox

cc: Mr. Jason Karp (w/o attachment)
Ms. Susan McMaster (w/o attachment)

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Location Routing Number (LRN) - Query on Release (QoR) Comparative Cost Analysis

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1.0 General

Query on Release (QoR) is an enhancement to Location Routing Number (LRN) that can dramatically reduce database query volume associated with call processing in a number portability environment. It is extremely important to note that Service Control Point (SCP) and Common Channel Signaling Network (CCSN) costs are directly proportional to query volume in the network. An increase in query volume will trigger a proportional increase in SCPs, and CCSN signaling links and Signal Transfer Point (STP) terminations.

LRN will generate a query on any local inter-office call to a portable NXX (an NXX in which at least one telephone number has been ported). Consequently, LRN costs are dependent on the number of portable NXXs, not quantity of numbers ported. In calculating LRN capacity requirements, it is assumed that all NXXs inside an MSA are portable. If all NXXs within a given MSA are designated as portable, all originating interoffice calls will generate a query.

QoR will generate a query only if the called number has ported; therefore, QoR costs are dependent upon the quantity of numbers that port, not NXXs that are portable.. If only 10 percent of the numbers in an MSA have actually ported, QoR will generate only 10 percent of the query volume required for LRN.

BellSouth is concerned with initial query volumes expected with LRN since this is an untried service. QoR would allow for a more gradual ramp up in query volume since queries are driven by the quantity of telephone numbers ported, not NXXs made portable.

BellSouth has estimated a savings of \$101.5 million dollars over five years based upon 10% ported numbers if allowed to use QoR. The breakdown of these savings is as follows:

SCP savings - \$80.5 million
CCSN savings - \$20.8 million
Switch savings - \$0.2 million

An analysis of how these savings were determined is detailed in the following sections.

2.0 CCSN and SCP Networks

The CCSN and SCP capacity required to support Local Number Portability (LNP) is directly proportional to the query volume generated by call processing. The following methodology is offered as an illustration for calculating capacity using both LRN and QoR.

2.1 Calculating LRN Query Volume:

Calculating query volume is based upon BellCore's assumption that each network access line (NAL) in a number portable area will generate 1.25 query related calls in the busy hour. BellSouth serves 21 of the top 100 MSAs listed in the FCC order, with a total of approximately 13 million NALs. Using this base of 13 million NALs, the regional busy hour query volume is derived as follows:

$13,000,000 \text{ NALs} \times 1.25 \text{ Busy Hour Queries per NAL} = 16,250,000 \text{ Originating Busy Hour Queries}$

A 20 percent factor is applied for terminating queries generated from networks that are not capable of performing originating queries (e.g. independent telcos, wireless service providers, small IXCs).

$13,000,000 \text{ NALs} \times .2 \times 1.25 = 3,250,000 \text{ Terminating Busy Hour Queries}$

The sum of originating and terminating busy hour query volumes must be converted to transactions per second (TPS or queries per second) in order to determine required capacity. This is computed as follows.

$$(16,250,000 + 3,250,000) / 3600 \text{ Seconds (36 CCS)} = 5417 \text{ TPS in the Busy Hour}$$

2.2 Calculating Network Costs using LRN:

Using the TPS demand calculated in section 2.1, total CCSN/SCP costs can be produced using a combined unit cost per TPS. Combined unit pricing, as opposed to individual unit pricing, is used to illustrate cost development in order to protect vendor proprietary information. BellSouth's combined unit cost per TPS is estimated at \$14,000. This figure represents the aggregate cost of busy hour capacity for the SCPs currently under review for use in BellSouth, as well as CCSN technology currently deployed in BellSouth. Specifically, this unit cost represents the cost of hardware and software for SCPs, low speed CCSN links (56 kps) and Signal Transfer Point (STP) capacity. The total cost associated with CCSN/SCP requirements is derived as follows.

$$\text{Total SS7/SCP Cost} = 5417 \text{ TPS (Derived from Regional Busy Hour Query Volume)} \times \$14,000 \text{ (Combined Unit Cost per TPS)} = \$75.8 \text{ million dollars to support the 21 MSA query volume (13 million NALs).}$$

2.3 Comparative QoR Query Volume and Costs:

In a QoR environment, the number of busy hour originating queries is assumed to be directly proportional to the number of NALs ported. Assuming that 10% of NALs are ported, this would generate one tenth of the originating query volume required with LRN. Performing the same calculations with QoR produces the following results.

$$\begin{aligned} 13,000,000 \text{ NALs} \times .10 \times 1.25 &= 1,625,000 \text{ Originating Busy Hour Queries.} \\ 13,000,000 \text{ NALs} \times .20 \times 1.25 &= 3,250,000 \text{ Terminating Busy Hour Queries} \\ \text{Busy Hour TPS} &= (1,625,000 + 3,250,000) / 3600 = 1354 \text{ TPS} \end{aligned}$$

Using the same combined unit price of \$14,000 per TPS, the cost to support LNP via QoR is calculated as follows.

$$1354 \text{ TPS} \times \$14,000 \text{ per TPS} = \$19 \text{ million dollars to support the 21 MSAs (13 million NALs)}$$

The incremental cost difference in total CCSN/SCP costs to support the 21 MSAs is \$56.8 million dollars when comparing LRN to QoR. Total CCSN/SCP cost savings is estimated at \$101.3 million dollars when extrapolated over a five year forecasted base of 24 million NALs, assuming ubiquitous deployment of number portability throughout BellSouth.

3.0 Switching (SSP) Costs

Switch (SSP) cost savings are minimal (\$200K) when comparing LRN to QoR in a 10 percent ported number environment. However, it should be pointed out that estimated savings are minimal due to the fact that planning list prices were assumed for the QoR software feature. Should these prices be substantially discounted, SSP cost savings would become more significant. For example, hardware savings over five years are approximately \$35 million dollars when comparing LRN to QoR. Approximately \$25 million of this total is due to savings associated with Nortel DMS-100 processor upgrades to SuperNode 70 and the XA Core. The remaining \$10 million savings is realized from a reduction in processor upgrades required in BellSouth's Lucent 5ESS switches. This includes upgrades such as DLN to DLN30, 3B20D to 3B21D, CM1 to CM2 and also addition of a DLN30. Most of these savings are currently offset by an estimated \$34.8 million dollar software cost for the QoR feature. If a 20% discount on list QoR prices were realized, five year SSP cost savings would be estimated at \$ 7 million dollars

$$(\$35\text{M} - (\$34.8\text{M} \times .80)) = \$ 7 \text{ million).}$$